

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First

Named

Inventor: Paul J. Hergenrother

Serial No.: 10/595,360

Examiner: Not yet assigned

Filing

Date: December 21, 2006

Group Art Unit: 1623

Title:

METHODS OF DETECTING
POLY(ADP-RIBOSE)
POLYMERASE AND OTHER
NAD+ UTILIZING ENZYMES

Confirmation No.: 8169

INFORMATION DISCLOSURE STATEMENT

M.S. – AMENDMENT

Commissioner for Patents

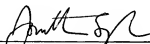
P.O. Box 1450

Alexandria, VA 22313-1450

Dear Sir:

In accordance with the provisions of 37 C.F.R. § 1.56, Applicants request that citation and examination of the references identified on the attached Form PTO-1449, required copies of which are enclosed herewith in accordance with 37 C.F.R. §1.98, be made during the course of examination of the above-referenced application for United States Letters Patent.

Respectfully submitted,



Jonathan P. Taylor, Ph.D.
Reg. No. 48,338

Evan Law Group, LLC
600 West Jackson
Suite 625
Chicago, IL 60661
(312) 876-1400

Form PTO-1449 (Rev. 8-88)	Attorney Docket No. ILL01-009-US	Serial No. 10/595,360
INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)	First Named Inventor Paul J. Hergenrother	
	Filing Date: December 21, 2006	Group: 1623

U.S. PATENT DOCUMENTS

Examiner Initials*		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
	A1	4,166,765	09/1979	Weetall			
	A2	5,177,075	01/1993	Suto et al.			

FOREIGN PATENT DOCUMENTS

Examiner Initials*		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	B1	WO 2004/064739 A	08/2004	PCT				

OTHER ITEMS - NON PATENT LITERATURE DOCUMENTS

Include, as applicable: Author, Title, Date, Publisher, Edition or Volume, Pertinent Pages

Examiner Initials*		
C1	Zhang et al., "GPI 6150 prevents H ₂ O ₂ cytotoxicity by inhibiting poly(ADP-ribose) polymerase," Biochemical and Biophysical Research Communications, 278, pp. 590-598, 2000.	
C2	Li et al., "Synthesis of Substituted 5/[h]Phenanthridin-6-ones as Potent Poly(ADP-ribose)polymerase-1 (PARP1) Inhibitors," Bioorganic & Medicinal Chemistry Letters, 11, pp. 1687-1690, 2001.	
C3	Decker et al., "An improved nonisotopic test to screen a large series of new inhibitor molecules of poly(ADP-ribose) polymerase activity for therapeutic applications," Clin. Cancer Res., Vol. 5, pp. 1169-1172, 1999.	
C4	Brown et al., "Development of a high-throughput screening-amenable assay for human poly(ADP-ribose) polymerase inhibitors," J. Pharma. Toxicol. Meth., Vol. 47, pp. 137-141, 2002.	
C5	Cheung et al., "A Scintillation Proximity Assay for Poly(ADP-ribose) Polymerase," Anal. Biochem., Vol. 282, pp. 24-28, 2000.	
C6	Pacheco-Rodriguez et al., "Measurement of poly(ADP-ribose) glycohydrolase activity by high resolution polyacrylamide gel electrophoresis: Specific inhibition by histones and nuclear matrix proteins," Mol. Cell Biochem, 193, pp. 13-18, 1999.	
C7	Ying et al., "Poly(ADP-ribose) glycohydrolase mediates oxidative and excitotoxic neuronal death," PNAS, Vol. 98, No. 21, pp. 12227-12232, 2001.	
C8	Menard et al., "Rapid assay of poly(ADP-ribose) glycohydrolase," Biochem. Cell Biol., Vol. 65, pp. 668-673, 1987.	
C9	Lu et al., "Post-treatment with a novel PARG inhibitor reduces infarct in cerebral ischemia in the rat," Brain Research, 978, pp. 99-103, 2003.	
C10	Clark et al., "A Fluorimetric Method for Quantitation in the Picomole Range of N ¹ -Methylnicotinamide and Nicotinamide in Serum," Analytical Biochemistry, No. 68, pp. 54-61, 1975.	

Examiner	Date Considered
----------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449 (Rev. 8-88)	Attorney Docket No. ILL01-009-US	Serial No. 10/595,360
INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)	First Named Inventor Paul J. Hergenrother	
	Filing Date: December 21, 2006	Group: 1623

Examiner Initials*	OTHER ITEMS - NON PATENT LITERATURE DOCUMENTS Include, as applicable: Author, Title, Date, Publisher, Edition or Volume, Pertinent Pages	
	C11	Putt et al., "An enzymatic assay for poly(ADP-ribose) polymerase-1 (PARP-1) via the chemical quantitation of NAD+: application to the high-throughput screening of small molecules as potential inhibitors," <i>Analytical Biochemistry</i> , 326, pp. 78-86, 2004.
	C12	Putt et al., "A nonradiometric, high-throughput assay for poly(ADP-ribose) glycohydrolase (PARG): application to inhibitor identification and evaluation," <i>Analytical Biochemistry</i> , Vol. 333, pp. 256-264, 2004.
	C13	Tong et al., "Poly(ADP-ribose) polymerase: a guardian angel protecting the genome and suppressing tumorigenesis," <i>Biochimica et Biophysica Acta</i> , 1552, pp. 27-37, 2001.
	C14	Bürkle, "PARP-1: A Regulator of Genomic Stability Linked with Mammalian Longevity," <i>Chembiochem</i> , 2, pp. 725-728, 2001.
	C15	Davidovic et al., "Importance of Poly(ADP-Ribose) Glycohydrolase in the Control of Poly(ADP-Ribose) Metabolism," <i>Experimental Cell Research</i> , 268 pp. 7-13, 2001.
	C16	Le Page et al., "Poly(ADP-ribose) Polymerase-1 (PARP-1) Is Required in Murine Cell Lines for Base Excision Repair of Oxidative DNA Damage in the Absence of DNA Polymerase β ," <i>The Journal of Biological Chemistry</i> , Vol. 278, No. 20, pp. 18471-18477, 2003.
	C17	Shall et al., "Poly(ADP-ribose) polymerase-1: what have we learned from the deficient mouse model?," <i>Mutation Research</i> , 460, pp. 1-15, 2000.
	C18	Delaney et al., "Potentiation of Temozolomide and Topotecan Growth Inhibition and Cytotoxicity by Novel Poly(adenosine Diphosphoribose) Polymerase Inhibitors in a Panel of Human Tumor Cell Lines," <i>Clinical Cancer Research</i> , Vol. 6, pp. 2860-2867, 2000.
	C19	Griffin et al., "The role of inhibitors of poly(ADP-ribose) polymerase as resistance-modifying agents in cancer therapy," <i>Biochimie</i> , 77, pp. 408-422, 1995.
	C20	Cosi C., "New inhibitors of poly(ADP-ribose) polymerase and their potential therapeutic targets," <i>Expert Opin. Ther. Patents</i> 12, pp. 1047-1070, 2002.
	C21	Sims et al., "Poly (ADP-ribose) Polymerase Inhibitors Preserve Nicotinamide Adenine Dinucleotide and Adenosine 5'-Triphosphate Pools in DNA-Damaged Cells: Mechanism of Stimulation of Unscheduled DNA Synthesis," <i>Biochemistry</i> , 22, pp. 5188-5194, 1983.
	C22	Schraufstatter et al., "Hydrogen Peroxide-Induced Injury of Cells and Its Prevention by Inhibitors of Poly(ADP-Ribose) Polymerase," <i>Proceedings of the National Academy of Sciences of the United States of America</i> , Vol. 83, No. 13, pp. 4908-4912, 1986.
	C23	Szabo et al., "Role of Poly(ADP-ribose) synthetase in inflammation and ischaemia-reperfusion," <i>Trends Pharm. Sci.</i> , Vol. 19, pp. 287-298, 1998.
	C24	Thiemermann et al., "Inhibition of the activity of poly(ADP ribose) synthetase reduces ischemia-reperfusion injury in the heart and skeletal muscle," <i>Proc. Natl. Acad. Sci., USA</i> , Vol. 94, pp. 679-683, 1997.
	C25	Kauffmann et al., "Specific Proteolytic Cleavage of Poly(ADP-ribose) Polymerase: An Early Marker of Chemotherapy-induced Apoptosis," <i>Cancer Research</i> , 53, pp. 3976-3985, 1993.
	C26	Lazebnik et al., "Cleavage of poly(ADP-ribose) polymerase by a proteinase with properties like ICE," <i>Nature</i> , Vol. 371, pp. 346-347, 1994.
	C27	Tewari et al., "Yama/CPP32 β , a Mammalian Homolog of CED-3, Is a CrmA-Inhibitable Protease That Cleaves the Death Substrate Poly(ADP-Ribose) Polymerase," <i>Cell</i> , Vol. 81, pp. 801-809, 1995.
	C28	Scovassi et al., "Poly(ADP-ribosylation) and apoptosis," <i>Molecular and Cellular Biochemistry</i> , 199, pp. 125-137, 1999.
	C29	Smith, "The world according to PARP," <i>Trends in Biochemical Sciences</i> , Vol. 26, No. 3, pp. 174-179, 2001.
	C30	Ruf et al., "Structure of the Catalytic Fragment of Poly(ADP-Ribose) Polymerase from Chicken," <i>Proceedings of the National Academy of Sciences of the United States of America</i> , Vol. 93, No. 15, pp. 7481-7485, 1996.
	C31	Ruf et al., "Inhibitor and NAD ⁺ Binding to Poly(ADP-ribose) Polymerase As Derived from Crystal Structures and Homology Modeling," <i>Biochemistry</i> , 37, pp. 3893-3900, 1998.
	C32	Virág et al., "The Therapeutic Potential of Poly(ADP-Ribose) Polymerase Inhibitors," <i>Pharmacological Reviews</i> , Vol. 54, No. 3, pp. 375-429, 2002.

Form PTO-1449 (Rev. 8-88)	Attorney Docket No. ILL01-009-US	Serial No. 10/595,360
INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)	First Named Inventor Paul J. Hergenrother	
	Filing Date: December 21, 2006	Group: 1623

Examiner Initials*	OTHER ITEMS - NON PATENT LITERATURE DOCUMENTS Include, as applicable: Author, Title, Date, Publisher, Edition or Volume, Pertinent Pages	
	C33	Southan et al., "Poly(ADP-Ribose) Polymerase Inhibitors," Current Medicinal Chemistry, 10, pp. 321-340, 2003.
	C34	Tentori et al., "Potential Clinical Applications of Poly(ADP-Ribose) Polymerase (PARP) Inhibitors," Pharmacological Research, Vol. 45, No. 2, pp. 73-85, 2002.
	C35	Dillon et al., "A FlashPlate Assay for the Identification of PARP-1 Inhibitors," J. Biomol. Screening, 8, pp. 347-352, 2003.
	C36	Huff, "The Fluorescent Condensation Product of N'-Methylnicotinamide and Acetone, I. Synthesis and Properties," The Journal of Biological Chemistry, 167, pp. 151-156, 1947.
	C37	Huff et al., "The Fluorescent Condensation Product of N'-Methylnicotinamide and Acetone, II. A Sensitive Method For The Determination Of N'-Methylnicotinamide In Urine," The Journal of Biological Chemistry, 167, pp. 157-167, 1947.
	C38	Levitas et al., "The Fluorescent Condensation Product of N'-Methylnicotinamide and Acetone, III. A Rapid Fluorometric Method For The Determination Of The Total Pyridine Nucleotides In The Red Blood Cells," The Journal of Biological Chemistry, 167, pp. 169-175, 1947.
	C39	Robinson et al., "The Fluorescent Condensation Product of N'-Methylnicotinamide and Acetone, IV. A Rapid Method For The Determination Of The Pyridine Nucleotides In Animal Tissues. The Coenzyme Content Of Rat Tissues," The Journal of Biological Chemistry, 170, pp. 653-659, 1947.
	C40	Carpenter et al., "The Fluorimetric Estimation of N'-Methylnicotinamide and its Differentiation from Coenzyme I," Biochem. J., 46, pp. 421-426, 1950.
	C42	Nakamura et al., "Fluorometric Assay of α -Methylene Carbonyl Compounds with N'-Methylnicotinamide Chloride," Analytical Chemistry, Vol. 50, No. 14, pp. 2047-2051, 1978.
	C43	Sano et al., "Fluorometric Determination of N-Nitroso-N-methylurea with Nicotinamide and Acetophenone," Analytical Sciences, Vol. 17, pp. 375-378, 2001.
	C44	Eliasson et al., "Poly(ADP-ribose) polymerase gene disruption renders mice resistant to cerebral ischemia," Nature Medicine, Vol. 3, No. 10, pp. 1089-1095, 1997.
	C45	Takahashi et al., "Post-treatment with an inhibitor of poly(ADP-ribose) polymerase attenuates cerebral damage in focal ischemia," Brain Research, 829, pp. 46-54, 1999.
	C46	Banasik et al., "Specific Inhibitors of Poly(ADP-Ribose) Synthetase and Mono(ADP-Ribosyl)transferase," The Journal of Biological Chemistry, Vol. 267, No. 3, pp. 1569-1575, 1992.
	C47	Moroni et al., "Poly(ADP-ribose) polymerase inhibitors attenuate necrotic but not apoptotic neuronal death in experimental models of cerebral ischemia," Cell Death and Differentiation, 8, pp. 921-932, 2001.
	C48	International Search Report and Written Opinion for PCT/US2004/034010 dated May 2, 2005, 13 pages.